

Can wearable technology be used to increase learning and wellbeing?

EXECUTIVE SUMMARY

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Problem and context

Finnish adolescents are experiencing decreased physical activity, sleep, and increased stress and school exhaustion. This affects their wellbeing and learning. The aim was to find new teaching methods to boost students' motivation and provide beneficial information about their wellbeing, as wellbeing is crucial for learning.

Implementation (the Story)

The study was conducted in two phases at the University of Jyväskylä Teacher Training School.

1. Lower secondary school

- **participants** – approximately 300 pupils, aged 13-16,
- **theme** – 'Taking care of oneself and everyday life skills',
- **workshops** – focused on sleep, stress management and physical activity,
- **tools** – Firstbeat Bodyguard 2 sensors and Polar M-smartwatches to measure stress, recovery, sleep quality and physical activity,
- **process** – students wore sensors for several days, received personalised feedback, and participated in workshops with activities like relaxation exercises, sleep education and physical activities.

2. Upper secondary school

- **course** – 'Exercise, Wellbeing and Measuring',
- **participants** – students aged 16-17,
- **tools** – Polar M200 smartwatches, Firstbeat Wellbeing Analysis, sleep monitors, and mobile apps like Sports Tracker and Polar Flow,
- **activities** – students measured various physical parameters, analysed their data, and received feedback. They also participated in additional health measurements and expert lectures.

Lessons learned

1. **Collaborative planning.** Multidisciplinary teams of teachers should design workshops integrating wellbeing data with learning goals.

2. **Student participation.** Clear instructions and materials are essential for smooth participation.
3. **Technology and tools.** Choose user-friendly wearable devices that provide relevant wellbeing data.
4. **Data collection.** Plan measurements over multiple days to capture comprehensive wellbeing patterns.
5. **Workshops and feedback.** Functional workshops and personalised feedback help students understand and improve their wellbeing.
6. **Integration with curriculum.** Align sensor-based learning activities with curriculum objectives.
7. **Student engagement.** Use gamified tools and group discussions to make learning engaging.
8. **Ethics and sensitivity.** Ensure compliance with data privacy regulations and obtain parental consent.
9. **Teacher preparation.** Provide training and resources for teachers to integrate sensor-based learning.
10. **Evaluation and feedback.** Use surveys to evaluate effectiveness and gather feedback for future improvements.

This study shows that using wearable technology in education can enhance students' learning and wellbeing by making learning more engaging and providing valuable insights into their health.



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